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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ROBERTSON, JEFFREY

ART UNIT	PAPER NUMBER
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1712

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DATE MAILED: 01/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/921,303

Applicant(s)

MURPHY ET AL.

Examiner

Jeffrey B. Robertson

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 55-63 is/are pending in the application.
- 4a) Of the above claim(s) 6-9, 16-20, 55, 59-61 and 63 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4, 10-15 and 62 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 5 and 56-58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3, 6, 7, 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Information Disclosure Statement

1. Elliot (U.S. Patent No. 4,166,891) is indicated as an X reference in the international search report. However, Elliot does not teach or suggest any substrates with a silicon oxide anchor layer having the properties set forth by applicant in the claims.

Election/Restrictions

2. Applicant's election of Group I, claims 1-20 and 55-63 in Paper No. 10 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The examiner notes that applicant is correct in that claims 56-68 should have been included in Group I. In addition, the examiner notes the election of Species A, claims 4, 5, 56-58, and 62 with claims 1-3 and 10-15 being generic thereto.

Specification

3. The disclosure is objected to because of the following informalities: in Examples XVI, XVII, XX, XXII, XXV, and XXVI, page 24, lines 4-16, page 25, lines 8-15, page 28, lines 6-14, page 30, lines 5-12, page 33, lines 1-6, and page 34, lines 2-9 of the specification, applicant indicates that these examples are according to the invention. However, the units for the root mean square surface roughness are in mμ not nanometers. These values are much larger than described in the body of the specification. Are the units in these examples correct?

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 62 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claim 62, silicon tetrachloride is listed in the claim, however this silane is not an alkylchlorosilane since it lacks an alkyl group.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirai et al. (U.S. Patent No. 5,492,762).

For claims 10-12, in column 1, lines 10-23, Hirai teaches water-resistant coatings on substrates. In column 17, Table 5, Example 11, Hirai teaches in this example that the Haze is 0.0%, which is less than 3.0%, 2.0%, and 1.5%. In columns 15-16, Table 4, Hirai teaches that in Example 11, there is a conductive coating, coating solution 1, and a protective coating, Matrix A. In Table 3, columns 13 and 14, coating solution 1 is defined as containing Matrix A. Matrix A is defined in columns 11 and 12, in Table 1 as containing a silica polymer derived from ethyl silicate. In column 5, lines 25-29, Hirai discloses that the alkoxy silanes are hydrolyzed into SiO_2 or silicon oxide. Thus, Hirai teaches a silicon oxide anchor layer since this layer is underneath the protective coating.

8. Claims 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Kon et al. (U.S. Patent No. 6,136,444).

In column 1, lines 5-17, and 44-52, Kon teaches that coated substrates are produced that have properties of solvent resistance to aqueous solvents. In column 3, lines 28-40, Kon teaches substrates that have a metal oxide underlayer, which contains additional layers such as a solvent resistant layer and a transparent electrically conductive layer. In column 6, lines 5-31, Kon teaches a silicon oxide metal oxide layer, where the Haze value is 1% or less. This is less than 3.0%, 2.0%, and 1.5%.

9. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Foresi et al. (U.S. Patent No. 5,841,931).

The examiner is interpreting claim 1 as that the root mean square surface roughness applies to the whole coating and not just the anchor layer. In column 2, lines 55-65, Foresi teaches that a substrate is coated with a cladding layer that is silicon oxide, and that amorphous silicon is deposited over that layer. Here, Foresi also teaches that the surface has a root mean square surface roughness of less than about 6 nm, which is consistent with applicant's claim 1.

10. Claims 1, 4, 10, and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Newsham et al. (U.S. Patent No. 5,691,011).

For claims 1, 4, 10, and 13-15, in column 4, line 55 through column 5, line 27, Newsham teaches that silicon tetrachloride is reacted in the presence of a glass substrate at a relative humidity of 38-42%. Newsham then teaches that an alkylchlorosilane, n-Hexadecyltrichlorosilane, is deposited on top of this layer. Newsham fails to teach the silicon tetrachloride and the alkylchlorosilane is vapor deposited. However it is noted that claims 4, and 13-15 are product-by-process claims. There does not appear to be a difference in the resulting anchor layer since the silicon tetrachloride applied by Newsham is added neat. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product

was made by a different process" In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

For claims 1 and 10, Newsham does not expressly teach the root mean square surface roughness of less than about 6 or haze value of less than about 3.0%. However, since the anchor layer is deposited at a relative humidity of less than about 50%, these properties would be inherent to the silicon oxide layer. "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F. 2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)).

Allowable Subject Matter

11. Claims 2, 3, 5, and 56-58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
12. Claim 62 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
13. The following is a statement of reasons for the indication of allowable subject matter: for claims 2, 3, 5, 56-58, and 62, Newsham et al. is the closest prior art.

Newsham does not teach or suggest the use of dimethyldichlorosilane or trimethylchlorosilane as the alkyltrichlorosilanes. In addition, for claims 2 and 3, although Newsham et al. would inherently anticipate the surface roughness of less than about 6 nm, there is not indication that the silicon oxide layers would be less than 5 nm or between 4 nm and 6 nm.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Misch et al. (U.S. Patent No. 3,637,416), Anderson et al. (U.S. Patent No. 3,808,027), Doris et al. (U.S. Patent No. 5,383,354), and Kawata et al. (U.S. Patent No. 5,763,091) are cited for teaching related substrates of general interest.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey B. Robertson whose telephone number is (703) 306-5929. The examiner can normally be reached on Mon-Fri 7:00-3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert A. Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

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Jeffrey B. Robertson
Examiner
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JBR
December 27, 2002